



APPLICATIONS

- Battery-powered devices
- IoT
- Wearable
- Portable devices
- Input filters

FEATURES

- Size 2mmx2.5mmx1.2mm
- Semi-Shielded Construction
- Low DCR
- Low Profile
- Low Stray Field
- Max Operating Temp +125°C
- RoHS/REACH-Compliant, Halogen-Free

ELECTRICAL CHARACTERISTICS

Parameter			Value	Unit
Inductance ⁽¹⁾	L	$\pm 20\%$	3.3	μ H
Resistance	R_{DC}	typ	158	m Ω
Resistance _{MAX}	$R_{DC\ MAX}$	max	189	m Ω
Rated Current ⁽²⁾	I_R	typ	1.8	A
Saturation Current _{25°C} ⁽³⁾	$I_{SAT\ 25°C}$	typ	2.4	A
Saturation Current _{100°C} ⁽⁴⁾	$I_{SAT\ 100°C}$	typ	2.4	A
Resonance Frequency	f_r	typ	49	MHz

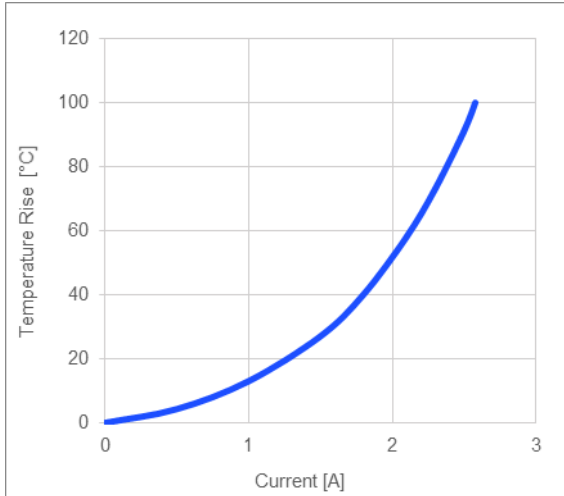
GENERAL SPECIFICATIONS

⁽¹⁾ Inductance	Measured at 100kHz, 100mA
⁽²⁾ Rated Current	Rated current will cause the coil temperature rise ΔT of 40K I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35 μ m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.
⁽³⁾ Saturation Current _{25°C}	Saturation current will cause L to drop from 30% at 25°C ambient temperature
⁽⁴⁾ Saturation Current _{100°C}	Saturation current will cause L to drop from 30% at 100°C ambient temperature
Temperature Test Condition	Electrical specifications measured at 25°C, 35% RH if not given differently
Operating Condition	Operating temperature: -40°C to +125°C (including temp rise) Should not exceed +125°C under worst-case operation conditions
Storage Condition	Tape and Reel packaging: -10°C to +40°C Humidity: <50% RH

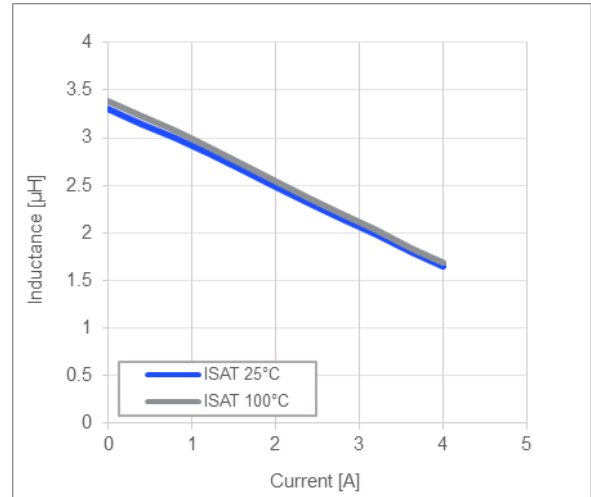
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TYPICAL PERFORMANCE CURVES

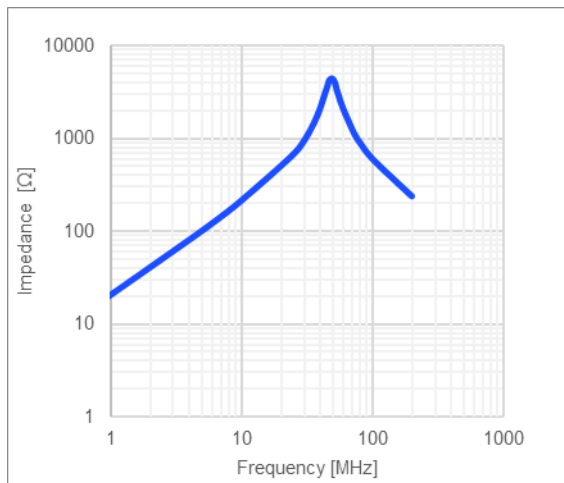
Temperature Rise vs. Current



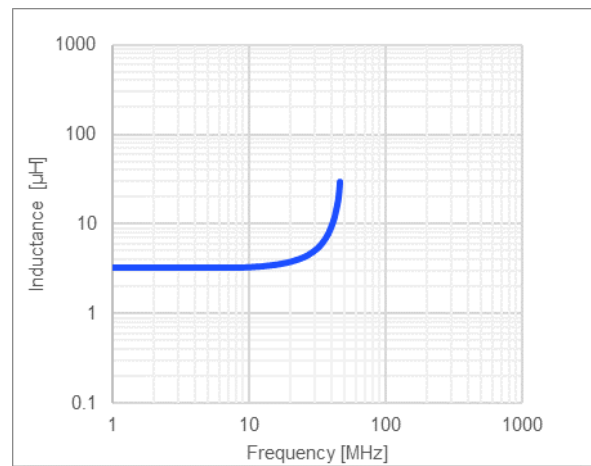
Inductance vs. Current



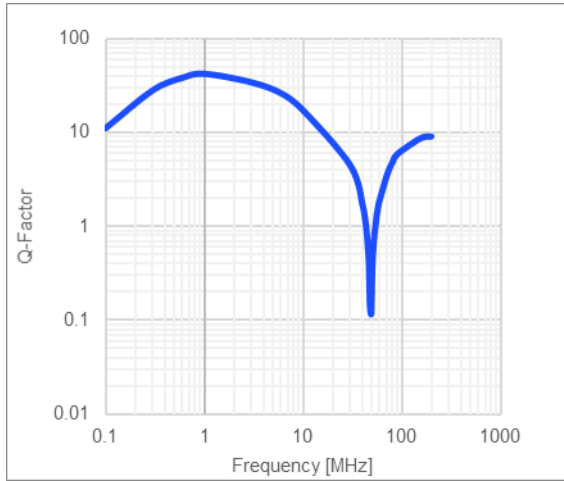
Impedance vs. Frequency



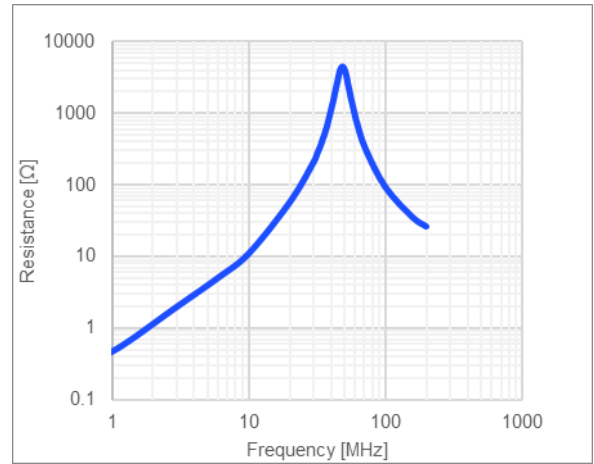
Inductance vs. Frequency



Quality Factor vs. Frequency



AC Resistance vs. Frequency



LAND PATTERN

Dimensions

A	2.10 ref.
B	0.80 ref.
C	2.60 ref.

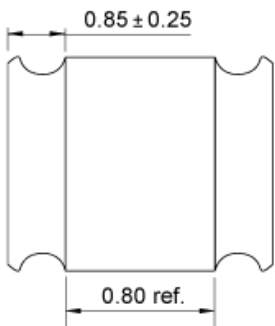
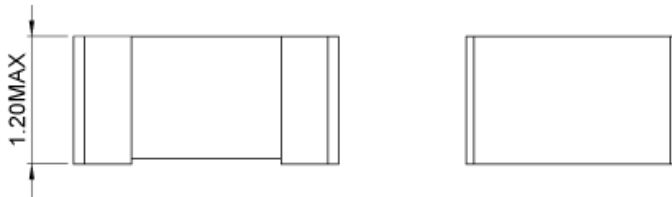
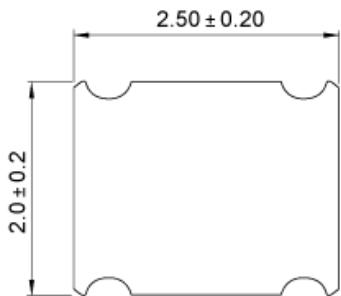
(unit in mm)



PRODUCT PACKAGE AND DIMENSIONS

Dimensions

(unit in mm)



ORDERING INFORMATION

Part Number	$L^{(1)}$ typ (μ H)	R_{DC} typ (m Ω)	$I_R^{(2)}$ typ (A)	$I_{SAT\ 25^\circ C}^{(3)}$ typ (A)	$I_{SAT\ 100^\circ C}^{(4)}$ typ (A)
MPL-SE2512-R47	0.47	27	4.5	6.5	6.5
MPL-SE2512-R68	0.68	33	3.8	4.3	4.3
MPL-SE2512-1R0	1.0	45	3.35	4.2	4.2
MPL-SE2512-1R5	1.5	62	2.9	3.2	3.2
MPL-SE2512-2R2	2.2	92	2.5	2.7	2.7
MPL-SE2512-3R3	3.3	158	1.8	2.4	2.4
MPL-SE2512-4R7	4.7	205	1.6	1.9	1.9
MPL-SE2512-100	10	400	1.1	1.3	1.3
MPL-SE2512-150	15	620	0.85	0.9	0.9
MPL-SE2512-220	22	1000	0.70	0.8	0.8

GENERAL SPECIFICATIONS
(1) Inductance

Measured at 100kHz, 100mA

(2) Rated Current

Rated current will cause the coil temperature rise ΔT of 40K
 I_R measured with the inductor soldered in a single-layer PCB. Copper layer thickness 35 μ m Cu / PCB size 30x50mm. Temperature behavior dependent on circuit design, PCB layout, proximity to other components, and trace dimensions and thickness.

(3) Saturation Current $_{25^\circ C}$

 Saturation current will cause L to drop from 30% at 25 $^\circ$ C ambient temperature

(4) Saturation Current $_{100^\circ C}$

 Saturation current will cause L to drop from 30% at 100 $^\circ$ C ambient temperature

Temperature Test Condition

 Electrical specifications measured at 25 $^\circ$ C, 35% RH if not given differently

Operating Condition

Operating temperature: -40 $^\circ$ C to +125 $^\circ$ C (including temp rise)
 Should not exceed +125 $^\circ$ C under worst-case operation conditions

Storage Condition

Tape and Reel packaging: -10 $^\circ$ C to +40 $^\circ$ C
 Humidity: <50% RH

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